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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/018,757	03/20/2002	Bernard Aspar	2541-000011	2780

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EXAMINER

SCHILLINGER, LAURA M

ART UNIT	PAPER NUMBER
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2813

DATE MAILED: 02/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/018,757

Applicant(s)

ASPAR ET AL

Examiner

Laura M Schillinger

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 November 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 21-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 21-40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 21-40 are rejected under 35 U.S.C. 102(e) as being anticipated by Usenko et al ('829).

In reference to claim 21, Usenko teaches a process comprising:

The implantation of gaseous compounds in the substrate to make a layer of micro-cavities at a depth from the plane face corresponding to the thickness of the required thin film, the gaseous compounds being implanted under conditions that could weaken the substrate at the layer of micro-cavities (Col.4, lines: 1-25 and Col.2, lines: 40-50); and

Partial or total separation of the thin film from the rest of the substrate, this separation comprising a step in which thermal energy is added and pressure is applied to the plane face (Col.2, lines: 50-65).

In reference to claim 22, Usenko teaches wherein the pressure is a gas pressure (Abs., lines: 1-15).

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In reference to claim 23, Usenko teaches wherein the pressure is a mechanical pressure (Abs., lines: 1-15).

In reference to claim 24, Usenko teaches wherein the mechanical pressure is generated by a piston (Col.7, lines: 10-25).

In reference to claim 25, Usenko teaches wherein the pressure is applied locally on the plane face (Fig.13A (33)).

In reference to claim 26, Usenko teaches wherein the pressure is applied uniformly on the plane face (Fig.14A (142)).

In reference to claim 27, Usenko teaches also comprising bonding of a thickener onto the plane face, after implantation of the gaseous compounds (Col.6, lines: 45-55).

In reference to claim 28, Usenko teaches wherein the thickener is composed of water (Col.6, lines: 45-55).

In reference to claim 29, Usenko teaches wherein the wafer is bonded by molecular bonding with the plane face (Col.2, lines: 45-50).

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In reference to claim 30, Usenko teaches wherein the thickener is formed by deposition of one or several materials 9Col.4, lines: 1-15).

In reference to claim 31, Usenko teaches wherein the pressure is applied though the thickener (Col.4, lines: 1-15).

In reference to claim 32, Usenko teaches wherein the pressure is adjusted during the coalescence of at least part of the micro-cavities, to remain slightly above a pressure called the limiting pressure, below which blisters appear on the place face above which blisters do not appear on the plane face (Col.4, lines: 24-35).

In reference to claim 33, Usenko teaches wherein coalescence is performed such that the thin film is separated form the rest of the substrate by pulling them apart (Col.7, lines: 10-25).

In reference to claim 34, Usenko teaches wherein the thin film is separated from the rest of the substrate by application of a heat treatment and optionally by mechanical forces (Col.6, lines: 10-30).

In reference to claim 35, Usenko teaches wherein the substrate used as the initial substrate is a substrate that has already been used to produce a thin film according to the process (Col.4, lines: 1-13).

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In reference to claim 36, Usenko teaches wherein the previously used substrate is polished to provide a new face plane (Col.4, lines: 1-15).

In reference to claim 37, Usenko teaches wherein the substrate supports one or several homogeneous and/or heterogeneous layers on the side having the plane face (Col.4, lines: 1-13).

In reference to claim 38, Usenko teaches wherein the substrate comprises a semiconductor material at least one the side having the plane face (Col.4, lines: 15-25).

In reference to claim 39, Usenko teaches wherein the substrate comprises all or part of at least one electronic device and/or at least one electro-optical device on the side having the plane face (Col.3, lines: 1-10).

In reference to claim 40, Usenko teaches wherein the separation of the thin film is delayed by the application of an additional step that consists of applying an additional pressure onto the thin film (Col.7, lines: 15-25).

Response to Arguments

Applicant's arguments filed 11/3/2003 have been fully considered but they are not persuasive. Applicant argues Usenko et al. discloses a separation process for silicon-on-insulator wafer fabrication. This process aims to solve disadvantages of the mainly the stated disadvantage of the Bruel prior art processes, and (USPN 5, 374,565) technique (see column 1, Lines 17-45

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and column 2, Lines 10-21). That is, a roughness of the as-cut surface. According to Usenko et al., the disadvantage of the Bruel technique results from the separation technique itself, that is, the thermal treating of column 1, Lines 24-45). a wafer assembly (see the process proposed by Usenko et al. excludes thermal treating and proposes other treatments to initiate the separation. This process proposes application of an energy source selected from the group consisting of ultrasound, hydrostatic pressure, hydrodynamic pressure, infrared light, mechanical, or combination thereof (see column 2, Lines 52-58). Usenko et al. teaches replacing the heat treating by another technique of providing energy to the layer of microcavities. The problem solved by the present invention is to further weaken the implanted zone without inducing any blisters on the implanted surface of the original substrate (see the specification, page 5, Lines 1-3). This is not the same surface as the as-cut surface described in Usenko et al. (see column 2, Lines 10-12). According to the present invention, the problem is solved by a combination of heat treatment and pressure application, as defined in claims 21-40. The pressure applied on the implanted face of the substrate renders this result possible by preventing the formation of blisters on the implanted face and also by preventing some blisters from bursting, as can occur if there is no applied pressure (see the specification, page 10, lines 22-31). The process according to the present invention permits attainment of very high weakening levels allowing, for example, to reduce the thermal amount necessary for the separation (see the specification, page 4, lines 17-19).

Applicant's arguments are duly noted, however Applicant should be reminded that the name of the game is the claim. In this case, Applicant's arguments are not persuasive because there is no

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support for Applicant's distinctions within the claim language itself, specifically Applicant's claim language does not pertain to pressure applied on the implanted face of the substrate as Applicant argues. Consequently, such arguments are not deemed persuasive.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura M Schillinger whose telephone number is (703) 308-6425. The examiner can normally be reached on M-T, R-F 7:00-5:00.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl W Whitehead, Jr. can be reached on (703) 308-4940. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LMS

February 5, 2004


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